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what a white box can do

This article describes how to take a standard touch tone keypad and convert it to a portable unit. This information is essentially public domain and was originally downloaded from the old OSUNY BBS. It is also available on Sherwood Forest J1 and undoubtedly other BBS's around the world. It is being reprinted and explained here for those who are not able to get this type of information from BBS's and for those who are just starting out in the phone phreak business.

If you convert a touch tone keypad in the manner described below, you will become more familiar with the inner workings of your telephone and telephone system. You will also be able to use rotary phones to call extenders or phone services that respond to touch tones, because now you will be able to generate touch tones yourself without having to depend on the phone. You will also be able to use payphones that turn off their touch tones after you dial your number. In addition, there are often phones in airports, hotels, and at bank machines which have no dial on them and automatically dial a pre-programmed number (usually a service number), which can be used by someone with a portable dialer to enter a number or numbers before the pre-programmed one starts to dial, thus gaining control or causing a wrong number. It is often the case that after the number dials or the error message ends, the phone might eventually revert to a dial tone which can be used. A portable tone generator like this is more useful than tapping the plunger on the telephone when no dial or keypad are available, which takes patience and effort. If you purchased a portable dialer, it would cost from \$20 to \$30 dollars. Good ones that remember 99 numbers, are password protected, and are smaller than a calculator cost \$60 to \$70 dollars. Often they are available from long distance services for less, when you sign up for them. The procedure related below is a nice way to bring new life to an old touch tone phone or keypad. Please note that the building and the general use of this device is legal and fun.

First of all, the tones made by a touch tone telephone are not single tones, they are a combination of two tones, making "DTMF" (dual tone multi-frequency). The normal tone telephone dials 12 different signals, but is capable of dialing 16 different signals.

The power required by a wired keypad is about 25 volts, but they will work with as little as 15, thereby allowing you to use two 9 volt radio batteries. As you may have eatpastraai

a phone phreak scores

This is another story to add to the annals of social engineering, one which we all can learn from...

A few months ago my Mom had some people refinish and blacktop our driveway. So she called some companies in the phone book, and she chose the cheapest one. They came and did most of the work, and Mom paid them, providing they came back soon to finish the blacktopping job. This all sounded fine, but after several weeks of the company calling up and postponing the final work, Mom wanted it done. She decided to visit the company at the address listed in the phone book, because she would always get an answering machine when she called them, but when she got there, she found out that it was just the back room of a storefront and that the company had vacated it a few months earlier. When she tried calling their number had been changed. So I did a CNA on their new number for Mom, and she visited the new address that I got. When Mom got to the new address she found a vacant lot. It was at this point that it started to sound pretty fishy to Mom and I. But how could we find out where they were, if they gave a fake address to the phone company?

guessed, they are also designed to operate with a telephone type speaker (and phone line), and not the standard 8 ohm speaker which needs to be used for adequate volume. To accomplish this, we use a matching transformer, this is one of those miniature ones available at Radio Shack. Enough of theory, now for the circuit.

You will need:

- A touch tone keypad
- A miniature 1000 to 8 ohm transformer (Radio Shack # 273-1380)
- A standard 8-ohm speaker
- Two 9-volt radio batteries
- Two 9-volt battery clips
- A case to put it all in (optional)

A few construction notes, it is suggested that you solder and tape all connections. It is also important to read this entire article before attempting to construct this.

First, connect the RED wire of the transformer to either terminal on the speaker. Now connect the WHITE wire from the transformer to the other terminal on the speaker. Next, connect the RED (positive) wire of one battery clip to the black wire of the other battery clip. Now connect the remaining RED wire on the second battery clip to the GREEN wire from the touch tone pad. Connect the BLUE wire from the touch tone pad to the ORANGE-and-BLACK striped wire from the touch tone pad. To these two wires, now connect the remaining black lead from first battery clip. You have now finished the power connection to the keypad. Connect the BLACK wire from the keypad to the BLUE wire on the transformer. Next connect the RED-and-GREEN striped wire from the keypad to the GREEN wire on the transformer. The BLACK wire on the transformer should not be connected to anything, along with quite a few wires from the keypad. The connection of the keypad is now complete. All you have to do is connect two nine volt batteries to the battery clips, and you'll be ready to go. You may want to mount it in a case for easy portability. Note that the silver box modification CAN be made to this unit, allowing complete remote phreaking. This is a bit more complex than the conversion you have accomplished above. When none of the buttons are pressed, this unit uses NO power, thereby eliminating the need for a power switch, and extending the life of the batteries.

That's when it occurred to me to call the business office that handles that company's telephone. I called and they answered: "Your number, please." So I gave them the company's number, and I proceeded to tell them how I did not get my last phone bill, and how I wanted to make sure they were sending it to the right address. They told me the real name and address (not the one at CNA or Directory Assistance, which was the one it was listed under, there is a difference, you know), they asked if I was "Mr. So and So," to which I responded "Yes." Then they asked if I wanted to change the mailing address. I said, "No, that's my partner's address. No need to change it. Thank you."

And that was it. I found their address. Mom visited their new location, which happened to be a trailer in the middle of a big field with a telephone and a power cable going into it. When she found the people at the company, they were quite startled, because it seemed that they did not have a license to do the work that they were doing and had several other customers and some government agencies looking for them. Since Mom had the goods on them, they were obliged to finish our driveway, and that's all Mom wanted after all.

PREFACE
The purpose of this tutorial is to give potential hackers useful information about Hewlett-Packard's HP2000 systems. The following notation will be used throughout this tutorial:

- <CR> - carriage return, RETURN, ENTER, etc.
- ^C - a control character (control-C in example)
- CAPITAL LETTERS - computer output & user input

SYSTEM INFORMATION

Each HP2000 system can support up to 32 users in a Timeshared BASIC (TSB) environment. The systems usually run a version of Hewlett Packard's Timeshared/BASIC 2000 (various Levels).

LOGIN PROCEDURE

Once connected to a HP2000, type a numeral followed by a <CR>. The system should then respond with: PLEASE LOG IN. If it does not immediately respond keep on trying this procedure until it does (they tend to be slow to respond).

User ID: The user id consists of a letter followed by 3 digits, eg. H241.

Password: The passwords are from 1 to 6 printing and/or non-printing (control) characters. The following characters will NOT be found in any passwords so don't bother trying them: line delete (^X), null (^Z), return (^M), line feed (^J), I-OPF (^S), rubout, comma (^L), space (^N), back arrow (^_), and underscore (_). HP also suggests that ^E is not used in passwords (but I have seen it done!).

The login format is: HELLO-A123,PASSWD Where: HELLO is the login command. It may be abbreviated to HEL. A123 is the user id & PASSWD is the password.

The system will respond with either ILLEGAL FORMAT or ILLEGAL ACCESS depending upon whether you screwed up the syntax or it is an invalid user id or password. The messages: PLEASE LOG IN, ILLEGAL FORMAT, & ILLEGAL ACCESS also help you identify HP2000 systems.

The system may also respond with ALL PORTS ARE BUSY NOW - PLEASE TRY AGAIN LATER or a similar message. One other possibility is NO TIME LEFT which means that they have used up their time limit without paying.

Unlike other systems where you have a certain amount of tries to login, the HP2000 system gives you a certain time limit to login before it dumps you. The system default is 120 seconds (2 minutes). The sysop can change it to be anywhere between 1 and 255 seconds, though. In my experience, 120 seconds is sufficient time for trying between 20-30 login attempts while hand-hacking & a much higher amount when using a hacking program.

USERS

The various users are identified by their user id (A123) & password. Users are also identified by their group. Each group consists of 100 users. For example, A000 through A099 is a group, A100 through A199 is another group, & 1900 through 1999 is the last possible group. The first user id in each group is designated as the Group Master & he has certain privileges. For example, A000, A100, ..., H200, ..., & 1900 are all Group Masters. The user id A000 is known as the System Master & he has the most privileges (besides the hardwired sysop terminal). The library associated with user 1999 can be used to store a HELLO program which is executed each time someone logs on.

So, the best thing to hack on an HP2000 system is the System Master (A000) account. It is also the only user id that MUST be on the system. He logs on by typing: HEL-A000,PASSWD. You just have to hack out his password. If you decide to hack 1999, you can create or change the HELLO program to give every user your own personal message every time he logs on! This is about all you can do with 1999 though since it is otherwise a non-privileged account.

LIBRARY ORGANIZATION

Each user has access to 3 levels of libraries: his own private library, a group library, and the system library. To see what is in these libraries you would type: CATALOG, GROUP, & LIBRARY respectively (all commands can be abbreviated to the first 3 letters). The individual user is responsible for his own library and maintaining all the files. If a program is in your CATALOG, then you can change it.

Group Masters

Group Masters (GM) are responsible for controlling all programs in the Group Libraries. Only members of the group can use these programs. These are viewed by typing GROUP. For example, user S500 controls all programs in the Group Library of all users beginning with id BSxx. Other users in the group CANNOT modify these programs. All programs in the group library are also in the Group Masters' private library (CATALOG), therefore he can modify them! The Group Master also has access to 2 privileged commands. They are: PROTECT & UNPROTECT. With PROTECT, the Group Master can render a program so it cannot be LISTED, SAVED, CSaved, Punched to paper tape, or XPunched. For example, if the GM typed PRO-NUMPUS, other users in the group would be able to RUN NUMPUS but they would not be able to list it. The GM can remove these restrictions with the UNProtect command.

System Master

There is exactly one System Master (SM) and his user id is A000. He can PROTECT & UNPROTECT programs in the System

Library.

All users have access to these files by typing LIBRARY to view them. Only the System Master can modify these files since his private library & group library constitute the System Library. The SM also has access to other privileged commands such as: DIRECTORY: this command will printout all files and programs stored on the system according to users. DIR will print out the entire directory. DIR-S500 will start listing the directory with user S500. Example:

```
DIR
BOCES ED 1 053/84 1243
ID NAME DATE LENGTH DISC DRUM
A000 ALPHR 043/84 00498 001384
      BCKGMN 053/84 04564 001526
      FPRINT 053/84 00567 002077
      STOCK 038/84 04332 002753
      TFILE 020/83 F 00028 002804
      WUMPUS 053/84 P 02636 003142
B451 BLJACK 316/75 03088 011887
      GDLF 316/75 02773 011911
S500 GTS 050/84 C 03120 019061
      B18CL4 050/84 F 03741 022299
Z999 HELLO 021/84 00058 011863
```

In this example, the system name is BOCES ED 1. The date of the printout is the 53rd day of 1984 (053/84) and the time is 12:43 (24-hr). The files appearing under A000 are those in the System Library. The DATE associated with the program is the date it was last referenced. The LENGTH is how long it is in words. DISC refers to its storage block location on one of the hard drives. DRUM refers to its location on the drum storage unit. Only sanctified programs are stored on a drum to increase their access time. The letters after the date refer to F if it is a file, P means it is protected, and C means the program is compiled. In the example the system program, WUMPUS, was last used on the 53rd day of 1984 (2-22-84); it is currently unlistable (PROTECTED) and it occupies 2636 words of memory starting at disc block 3142. The command SDIRECTORY will print out programs that are only stored on drum. Most system directories are usually longer than the example, the above example is an abridged version of a 43 page directory! The <BREAK> key will STOP the listing if necessary.

REPORT

The REPORT command will show the USER id, how much terminal TIME they have used since the last billing period (in minutes), and how much disc SPACE they are using. Example:

```
REPORT
BOCES ED 1 055/84 1905
ID TIME SPACE ID TIME SPACE ID TIME SPACE
A000 01150 12625 B451 00003 05861 S500 00000 00000
S500 00235 04861 S543 00421 00000 Z999 00000 00058
```

The advantage of hacking the A000 password first is that you can use the privileged commands to see which user id's exist and what programs are stored where so that you can further penetrate the system.

NOTE: There are different levels (versions) of TSB/2000. This article is based primarily on Level F. Most of the levels are similar in their commands so the differences should not affect the hacker. Also, some systems are customized. Eg, one system I know doesn't have the MESSAGE command because they don't want the operator bothered with messages. Another system says ??? instead of PLEASE LOG IN and ILLEGAL instead of ILLEGAL ACCESS. These are only trivial problems, though.

PROGRAMS

Hewlett-Packard often supplies programs from their TSB Library for the systems. Utilities such as ASCII\$, FPRINT, & others are almost inevitably found on every system. Standard games such as WUMPUS, STOCK, LUNAR, & many others are also a "system must." Other companies offer very large programs for the HP2000 also. GIS (Guidance Information Systems) is a database to help guidance counselors help students to select colleges, jobs, financial aid, etc. GIS is usually found in the S5xx group library (anyone with an S5xx password can use it). Unfortunately, sometimes these programs are set so that a certain password will automatically RUN them. In some cases you can abort by pressing the <BREAK> key. There is a BASIC function (X=BRK(0)) that disables the <BREAK> key. In this case, only the Sysop or the program can throw you into BASIC.

There are many alleged bugs on the HP2000 that allow users to do all sorts of things. If you run across any of these be sure to let us know.

Most of the HP2000 systems are used by schools, school districts, BOCES, and various businesses. This was an ideal system for schools before micro-computers existed. The HP2000 system has been in existence since around 1973. It has been replaced by the HP3000 but there are still many HP2000 systems in existence & I believe that they will stay there for awhile.

Here are the dial-ups to a few HP2000 systems to get you started: (203/622-1933), (212/777-7800)14, (312/398-8170), (314/645-1289), (914/327-5540)

! - This @ belongs to NYU. Type 'HP' at the prompt. Then hit the <BREAK> key slowly until you see the backlash (\) prompt. You are then in.

ABC
2MNO
6OPER
0OPER
0

FLASH

At the Last Stroke...

Associated Press

At precisely 11 am on April 2nd a man's voice was heard on Britain's telephone talking clock for the first time.

The smooth baritone voice of part-time actor Brian Cobby, 55 years old, replaced the modulated contralto of Pat Simmons, whose voice was retired after 21 years at precisely 10:59 and 50 seconds.

Last December Mr. Cobby was chosen from among 5,000 competitors to tell the nation the precise time every 10 seconds in a recorded telephone message that is expected to receive 300 million calls this year.

Only two other voices have been heard on the telephone clock since it was devised in 1919. Both were women's.

Mr. Cobby, an assistant supervisor at a telephone exchange in Brighton in southern England, said it was "a great honor to be Britannia's wristwatch." He was paid the equivalent of \$6,000 to record the 8,640 time announcements in one 24-hour period.

Good Apples for the Soviets

The New York Times

The Reagan Administration appears to be prepared to cooperate with Soviet efforts to put personal computers in secondary schools, according to industry officials negotiating export licenses.

"We expected it would be more difficult, so I was quite pleasantly surprised," said Albert Eisenstadt, a vice president of Apple Computer who was in Washington to discuss computer exports with Commerce and Defense Department officials. "They just want to make sure we do it right."

The Soviets are already producing their own "Agat"—a Soviet knockoff of an Apple II, but they are not able to produce enough. That is why IBM, Commodore, Sinclair Research Ltd., and Apple are all competing for the Soviet market.

The Commerce Department has argued that it makes no sense to bar American companies from selling computers the Russians could easily obtain in Japan and Britain. The Defense Department, which has taken a harder line, seems unperturbed by the thought of exporting thousands of machines, provided they are used for education. By law the sale of "hardened" machines that are designed to withstand battlefield conditions are barred.

Hackers Go Free

The New York Times

Four teenagers who used home computers to tap into a space agency computer at the Marshall Space Flight Center will not be prosecuted, United States Attorney Frank Donaldson announced.

The FBI seized the youths' computer equipment at their homes in Huntsville, Alabama, last July 16 after tracing the phone calls used to enter the computer. Unauthorized access to a computer is not permitted.

One of the youths, Robert Grumbles, 17 years old, said he wished the FBI would return his \$5,000 computer because "I don't see any reason for them to keep it." [Keep up the spirit, Rob.]

Robot Kills Man

The New York Times

Last summer, a Michigan man was the first worker killed by a robot in this country. The 34-year-old victim, working with automated die-casting machinery last July, was pinned between the back of a robot and a steel pole, the National Center for Disease Control reported. The worker suffered a heart attack, lapsed into a coma and died five days later.

There are more than 6,200 robots in use nationwide.

'Santa Fraud'

Associated Press

Randy Grimm didn't know it cost 55 cents every time he called a sports trivia game, so the 15-year-old dialed it 130 times last month hoping to answer the quiz correctly and win a prize. His mother received her telephone bill: 18 pages long, with more than \$190 worth of "976" calls. But Ms. Grimm doesn't want to pay, and neither do the parents of Josie Aaronson-Gels and Rachel Krebs-Falk, who repeatedly called a Santa Claus message last December, not knowing it was costing 50 cents a shot.

Josie and Rachel, both 7, are plaintiffs of record in a \$10 million lawsuit filed in San Francisco Superior Court against Pacific Bell and the company that operates the Santa Claus Line.

The suit accuses Bell and "Santa Fraud" of deceptive advertising "designed to falsely mislead children into believing the calls were free" and inducing them to call repeatedly.

The suit, filed on behalf of all California children, asks for a refund for an estimated 100,000 families and \$10 million in punitive damages to set up a children's protection fund to fight deceptive advertising.

Overseas Pirates

260 News Service

In the large cities in Holland last year, you couldn't switch on the TV at times without tuning in to a pirate station. With equipment costing as little as 20K, they would break into the cable networks that service as much as 90% of Holland's urban areas. Some would transmit anything they could get their hands on, just for the sport of it—while others tried to do things that were genuinely new to TV. Artists and performers were quick to join in, and for a while the country enjoyed a madcap, unpredictable after-hours TV service. There was everything from pop video to pornography, from foreign TV shows to feature films, even one station that transmitted occasional satanic sermons.

Threats of prosecution over copyright of some of the bootleg material put a stop to many of the pirates. In addition, the cable owners have now started switching off their systems outside regular hours, a remedy that was deemed illegal on a technicality last year. Most of the pirates have now gone back to the radio and the a-metric highlights of after-hours Dutch cable TV may never be seen again.

Real Life War Games?

UPI

A Stanford University computer operations specialist has filed a lawsuit to block the U.S. from hooking up a computer system that would automatically launch nuclear missiles in response to an incoming nuclear attack.

Clifford Johnson argues that it is unconstitutional to give war-making power to the so-called launch-on-warning computer system. He recently suffered a legal setback when the federal district judge declined to render a decision. The case will now go to the U.S. Court of Appeals in San Francisco.

Although the U.S. does not officially have the capability to deploy the launch-on-warning system, the technology to do so is definitely being developed by the Pentagon, Johnson claims. And he says, Secretary of Defense Caspar Weinberger, who is the defendant in the lawsuit, has stated that the U.S. has not closed the door on the launch-on-warning option.

Not only does Johnson fear that the launch-on-warning computer could somehow malfunction and start a nuclear war, but he points out that the satellites and radar that would warn the computer of an enemy missile launch could themselves sound a false alert, one that the computer would be unable to distinguish from the real thing.

"To hook this system up in peacetime is in essence an act of war," Johnson says, "because there is a definite risk of it going off accidentally."

Silver Pages

Combined News Service

Southwestern Bell Media is publishing a new phone book, printed in a larger typeface for senior citizens. It is expected to arrive in New Jersey in August and will be published in 110 cities across the United States and will feature stores that offer discounts to those age 60 and older. The directory, called the Silver Pages, will also include information on agencies on aging. [Hopefully, these directories won't weigh 50 pounds.]

Other News

Combined News Service

- A telephone operators' union threatened to picket an appearance by Jean Rivers at an AFL-CIO meeting. The union thinks that the comedian went a bit too far in bad-mouthing operators in a commercial she did for MCI communications, which doesn't use operators. The 650,000-member Communications Workers of America also charges that Rivers reneged on her acceptance of a challenge to work a day as an operator.

- The telephone company cannot seem to get the lines uncrossed at Fremantle International. The company has six telephone lines. For the last several weeks, incoming callers have been cutting into conversations in progress on other Fremantle lines. And when calls come in, all lights flash on all the phones, so it is just a guess which is the incoming call and which are calls in progress. Further, an incoming call might connect to a call-in service—one with a seductively voiced woman. "We've just been doing major business with the Christian Broadcasting Network," reported Craig MacDonald, the company's marketing director. "That's when it becomes not amusing."

- Bell Canada said it began charging large users of U.S. directory assistance to eliminate abuse of the service by customers who use free directory assistance to compile customer lists for sale to U.S. companies. Phone lines will now have free directory assistance for the first 250 requests.

- Pacific Bell has found a way to let a single phone line carry two voice and three computer conversations at the same time.

- United States banks lost an estimated \$70 million to \$100 million from fraudulent use of automated teller machines in 1983, with customers forfeiting millions from lost or stolen cards, the Government says. Banks suffered the bulk of the losses.

DEAR 2600:

When will it almost be impossible to use Long Distance Services? It is so easy to phreak off them and they never catch the majority of us, but when will it stop?

Puzzled
ONLY WHEN THE WORLD IS A BURNT OUT CINDER WILL IT STOP COMPLETELY. AS TECHNOLOGY CHANGES, SO DO PHONE PHREAKS. BLUE BOXES USED TO BE THE ONLY WAY A PHREAK MADE FREE PHONE CALLS, NOW THERE ARE EXTENDERS AND ALTERNATE CARRIERS. WE DON'T THINK EXTENDERS ARE GOING TO DIE OUT ANYTIME SOON. ALTERNATE CARRIERS (SPRINT, MCI, ETC.) WILL GET HARDER TO ABUSE AS EQUAL ACCESS MOVES IN, BUT THERE WILL ALWAYS BE A WAY. WE LOVE TO HEAR ABOUT NEW METHODS.

OPEN LETTER:

7 a.m., 02/07/85: Pursuant to a telephone discussion with Reginald Dunn, head of the criminal division of the Los Angeles City Attorney's office, I was informed that the prosecution believes it has insufficient evidence to continue the prosecution of Tom Tciapdis, SYSOP of MOB-UR. This determination was made after I requested a review of the case on 1/11/85 after the departure of City Attorney Ira Reiser to become D.A., and while the City Attorney's office is being run by the civil service staff pending election of a new city attorney. Mr. Dunn has given me his word that the people will seek dismissal of the charges against Tom under California Penal Code Section 1385, i.e., 'Dismissal in the interests of justice.' Under California law, such a dismissal is 'with prejudice' and the people can not refile the case subsequently. To put it succinctly, a dismissal will terminate the prosecution permanently.

As many of you know, the City Attorney's office has previously reneged on representations made to me regarding dismissal of the charges. I wish to assure everyone that I have known Mr. Dunn for 10 years, and I trust his word completely. If he says the case will be dismissed, I am satisfied that such an action will occur.

We win. Win...win...win...win...win. My thanks to everyone who contributed to supporting Tom and me in the defense of this matter. I consider this to be a major victory for the rights of free speech over the 'big brother' machinations of the phone company.

I would be grateful if you would download this message and place it on other systems throughout the country. This is a very big victory, and the BBS and modem communities should know about it.

Again thanks for the support.

Chuck Lindner, attorney for SYSOP Tom Tciapdis.
8 p.m., 02/07/85: The case of People vs. Tciapdis -- a.k.a. use a modem, go to jail -- was dismissed in the 'interests of justice' this morning, 2/7/85. As noted earlier, this dismissal is with prejudice, and Tom is now free of the PacTel scourge. Another small step for something resembling justice.

Thrilled we are for Tom, but charges dropped means laws remain. In this case Tom got away with what he did or the law just realized that there was just not enough evidence to prove anything. But California still has horrible tough laws that do not permit printing magazines like 2600! You cannot even disclose a phone number or a password format let alone a whole password there. We are glad he got his machine back, which is always a pleasant surprise. We encourage our readers to spread this news wherever they go as it is a very important development. (For those who don't know, Tom Tciapdis was the SYSOP of a computer bulletin board that someone posted a credit card number on. The phone company decided to press charges against him even though he claims never to have seen the number in question. They took his computer and got him a lot of national attention.)

DEAR 2600:

Have you been reading about those new high tech secure telephones? I've been thinking about what must be inside them. The closest thing I've heard to that kind of technology would be DVP - Digital Voice Processing. It's like digital audio processing, but after the voice is turned into bits, dsfdskxkfgskjkgpreegfds

they scramble them up and then send them off. The other side then decrypts the bits and transforms the decrypted signal back into voice. The stuff I've read (in Popular Communications Magazine, around a year ago) said that a lot of law enforcement agencies use it to scramble their radio transmissions. I believe the ones mentioned were the DEA and the Treasury police, maybe the secret service, but not, interestingly enough, the FBI. The only problem is that it didn't work too well - many people reported hearing the agents switching the DVP off and transmitting a normal, unscrambled signal because they couldn't get it working right. However, over a land line it would probably work a lot better. And the nice thing about DVP is that it really is secure, as long as no one knows your scrambling algorithm - however, I imagine the Russians already have the plans for one of those phones, given that very few military secrets ever remain secrets for long. Besides, if the government orders several thousand of them, it stands to reason that at least one would end up in the wrong hands. Anyway, I'm not sure that knowing the innards of those phones would help you unscramble the traffic, since that might only cut down the number of possibilities to a few billion instead of a few quadrillion. The whole point of encoding something is so that your enemy does not unscramble it while the information is still useful to either of you.

I've often thought about how to do something like that with our little modems. Two people talking on the phone via a scrambled modem link have a remarkably secure connection, provided they are using the right software for mixing up the bits. I seem to remember that ESS's these days are configured to automatically detect any kind of scrambling going on, and alert security folks whenever a scrambled conversation is noticed. The rationale is that someone scrambling a conversation has something to hide, and the big government boys are interested in people who have things to hide. However, the aforementioned pair on the phone would not be noticed by an ESS, since all they would be doing is setting up a normal modem conversation, and if they didn't mind slow communication they could be even more secure with an encryption scheme that sent two or three lines of "noise" for every character of genuine information being transferred. The noise could look very innocuous, say the transactions on a "legal" bulletin board, and thus not even appear to be hiding anything.

By the way, those are the best possible secret codes, the kind that do not appear to be anything out of the ordinary and thus are not even thought to be codes at all! Another possibility is to send information in the form of the time delays between each character transmitted. That means that someone "listening in" on a digital conversation by having the data printed out would miss out on the entire message, since his printer would only record the characters sent, which in this instance are utterly unimportant. By the way, monitoring of a computer conversation may not be considered wiretapping since the statutes concerned can be narrowly interpreted to cover only audio taping of a conversation, not digital eavesdropping.

Informed as Hell

MANY PARTS OF "PUZZLE PALACE" BY JAMES BANFORD GO INTO DETAIL ABOUT THE FORMS OF CRYPTOGRAPHY USED TODAY BY THE NATIONAL SECURITY AGENCY, WHICH INCIDENTALLY HAS EXPRESSED A STRONG INTEREST IN SUBSCRIBING TO US. WE HOPE THEY WILL CONTRIBUTE MANY FINE ARTICLES.

DEAR 2600:

Does 2400 baud work on standard Bell lines?
YES, 2400 BAUD IS ACTUALLY 4 BITS AT A TIME AT 600 BAUD. AND BELL LINES CAN HANDLE THAT.

DEAR 2600:

If I want to go trashing, am I forced to just attack my Central Office?

THERE ARE LOTS OF GOOD PLACES TO TRASH BESIDES PHONE COMPANIES. LOOK IN THE PHONE BOOK UNDER SOFTWARE COMPANIES, PHONE EQUIPMENT, COMPUTER EQUIPMENT, ELECTRONIC EQUIPMENT. OR LOOK AT RADIO SHACKS, OR STE. MCI, OR YOUR LOCAL CABLE COMPANY. YOU WILL FIND LOADS OF THINGS, LIKE FREE TELEPHONES, FLOPPIES, ETC.

all kinds of letters

The 2600 Information Bureau

HOSTS BY LOCATION			27-Sep-84		
STATE/COUNTRY	HOST NAME	HOST ADDRESS	SITE ADDRESS		
ALABAMA	ANNIS-MIL-TAC	26.2.0.113	USACC - Anniston	RAN22-MIL-TAC	10.0.0.7
	BUNTER-ADAN	26.1.0.13	Air Force Data Systems	UCLA-ATB	10.3.0.1
	BUNTER-TAC	26.2.0.13	Air Force Data Systems	UCLA-COM	10.3.0.1
	NICOM-TAC	26.2.0.41	Army Missile Command	UCLA-LOCUB	10.2.0.1
	NICOM-TEST	26.1.0.41	Army Missile Command	UCLA-TEST	10.0.0.1
AFPO				USC-ECL	10.3.0.121
FRANKFURT-MIL-TAC		26.0.0.116	Defense Communications Agency	USC-ECLB	10.0.0.23
ARIZONA				USC-ECLC	10.1.0.121
YUMA-8M		26.3.0.75	Army Yuma Proving Ground	USC-1B1	26.3.0.103
YUMA-TAC		26.2.0.75	Army Yuma Proving Ground	USC-1B2	10.3.0.52
CALIFORNIA: Northern				USC-1B3	10.0.0.59
A-LHI-SRI-03		10.7.0.81	NRI International	USC-1B4	10.0.0.27
AIS-UNIS		10.2.0.56	Advanced Information	USC-1B5	26.1.0.103
AMELIA-EC		26.4.0.16	MABA	USC-1BIF	10.2.0.52
AMES-MSB-8M		26.4.0.16	MABA	USC-TAC	10.2.0.53
AMES-TAC		26.1.0.16	MABA		
AMES-VMSB		26.3.0.16	MABA		
FHDC-SECURE		26.3.0.33	Navy Fleet Numerical		
KESTRAL		10.3.0.32	Kestrel Institute		
LDL		26.0.0.34	University of California		
LDL-CBRN		26.1.0.34	University of California		
LDL-HILNET-8M		10.0.0.48	Lawrence Berkeley		
LLL-CRB		26.3.0.21	University of California		
LLL-RFE		26.1.0.21	University of California		
LLL-TIB		26.0.0.21	University of California		
LLL-DIVISION		26.3.0.21	University of California		
NPS		26.0.0.33	Naval Postgraduate School		
NPS-TAC		26.2.0.33	Naval Postgraduate School		
OFFICE-1		26.0.0.43	Tyehara, Inc.		
OFFICE-10		26.1.0.43	Tyehara, Inc.		
OFFICE-15		26.1.0.43	Tyehara, Inc.		
OFFICE-2		26.2.0.43	Tyehara, Inc.		
OFFICE-3		26.2.0.43	Tyehara, Inc.		
OFFICE-7		26.3.0.43	Tyehara, Inc.		
OFFICE-8		26.0.0.43	Tyehara, Inc.		
PARC-MAIC		10.0.0.32	Xerox Corporation		
PARC-VAIC		10.1.0.32	Xerox Corporation		
RIACS-8M		26.4.0.16	Research Institute for		
RIACS-ICARUS		26.4.0.16	Research Institute for		
SI-A		26.1.0.78	University of California		
SI-B		26.2.0.78	University of California		
SI-C		26.3.0.78	University of California		
SRI-A1		10.4.0.2	NRI International		
SRI-CETHER-8M		10.1.0.107	NRI International		
SRI-CGL		10.2.0.2	NRI International		
SRI-F4		26.4.0.73	SRI International		
SRI-8M		10.3.0.51	SRI International		
SRI-IU		10.3.0.2	SRI International		
SRI-KL		10.1.0.2	SRI International		
SRI-MIL-TAC		26.3.0.73	SRI International		
SRI-MILNET-8M		10.4.0.51	SRI International		
SRI-MIG		10.0.0.51	SRI International		
SRI-PR-8M1		10.1.0.51	SRI International		
SRI-PR-8M2		10.3.0.51	SRI International		
SRI-PR-8M3		10.0.0.107	SRI International		
SRI-SPAN-TEST		10.2.0.107	SRI International		
SRI-SPRM		10.0.0.2	SRI International		
SRI-TSC		10.3.0.2	SRI International		
SRI-UNIS		10.2.0.81	NRI International		
SRI-WARF		26.1.0.73	SRI International		
STAMFORD-BATEWAY		10.1.0.11	Stanford University		
SU-A1		10.0.0.11	Stanford University		
SU-B		10.2.0.11	Stanford University		
SU-TAC		10.2.0.11	Stanford University		
SUREX-8M		10.0.0.54	Stanford University Medical		
UCB-ARPA		10.0.0.78	University of California		
UCB-VAX		10.2.0.78	University of California		
USDBS-TAC		26.1.0.70	U.S. Geological Survey		
USDBS-VMS		26.0.0.70	U.S. Geological Survey		
XEROX		10.2.0.32	Xerox Corporation		
CALIFORNIA: Southern					
ACC		26.4.0.65	Advanced Computer		
ACCAT-TAC		26.2.0.35	Naval Ocean Systems Center		
ADA-VAX		26.2.0.103	USC		
AERONET-8M		26.8.0.65	The Aerospace Corporation		
AEROSPACB		26.2.0.45	The Aerospace Corporation		
AFSC-8B		26.0.0.65	Air Force Systems Command		
AFSC-SB-TAC		26.1.0.65	Air Force Systems Command		
CIT-20		10.0.0.54	CALTECH		
CIT-CS-8M		10.1.0.54	CALTECH		
CIT-VAX		10.1.0.54	CALTECH		
EDWARDS-2060		26.1.0.39	Edwards Air Force Base		
EDWARDS-VAX		26.0.0.39	Edwards Air Force Base		
ISI-BATEWAY		10.3.0.27	USC		
ISI-HOSGDBL3N		10.1.0.52	USC		
ISI-NCOM-8M		10.1.0.52	USC		
ISI-MILNET-8M		10.2.0.22	USC		
ISI-PNR11		10.1.0.27	USC		
ISI-PSAT-18		10.3.0.22	USC		
ISI-SPEECH11		10.0.0.22	USC		
ISI-VARA		10.2.0.27	USC		
JPL-WLS1		10.3.0.54	Jet Propulsion Laboratory		
LDSTCON		26.7.0.3	Logicon, Inc.		
MARTIN-ED		26.3.0.65	Martin Marietta Corporation		
NOSC		26.0.0.3	Naval Ocean Systems Center		
NOSC-F4		26.4.0.35	Naval Ocean Systems Center		
NOSC-8M		26.0.0.3	Naval Ocean Systems Center		
NOSC-SECURE2		26.0.0.35	Naval Ocean Systems Center		
NOSC-SECURE3		26.3.0.35	Naval Ocean Systems Center		
NOSC-TECR		26.3.0.35	Naval Ocean Systems Center		
NPRDC		26.3.0.3	Naval Personnel Research		
NPRDC-8M		26.3.0.3	Naval Personnel Research		
NTEC-TACDEN-801		26.1.0.3	Sperry Technical Services		
NMC-3A03		26.1.0.45	Naval Weapons Center		
NMC-3B7A		26.0.0.85	Naval Weapons Center		
NMC-3B7B		26.3.0.85	Naval Weapons Center		
NMC-TAC		26.2.0.85	Naval Weapons Center		
RAND-ARPA-TAC		10.2.0.7	The Rand Corporation		
RAND-UNIX		10.3.0.7	The Rand Corporation		
				THE RAND CORPORATION	
				UNIVERSITY OF CALIFORNIA	
				NAVY REGIONAL DATA	
				US ARMY CAMP KING	
				US AIR FORCE	
				SCA EUROPE	
				HEADQUARTERS, U.S. ECOM	
				ARMY MATERIAL DEVELOPMENT	
				COMANDER IN CHIEF PACIFIC	
				ECB TECHNICAL CONTROL	
				AIR FORCE COMMUNICATIONS	
				AIR FORCE COMMUNICATIONS	
				AIR FORCE COMMUNICATIONS	
				AIR FORCE COMMUNICATIONS	
				ARGONNE NATIONAL LABORATORY	
				OSD SOFTWARE DIVISION	
				AIR FORCE COMMUNICATIONS	
				AIR FORCE COMMUNICATIONS	
				PURDUE UNIVERSITY	
				PURDUE UNIVERSITY	
				NAVY TELE. LOCATIONS	
				NATO MARIT. AIR FIELD	
				AUTODIN SWITCHING CENTER	
				NAVY REGIONAL DATA	
				NAVY REGIONAL DATA	
				TEST AND EVALUATION COMMAND	
				ABERDEEN PROVING GROUND	
				ABERDEEN PROVING GROUND	
				ARMY ARMAMENT RESEARCH	
				ARMY ARMAMENT RESEARCH	
				ARMY ARMAMENT RESEARCH	
				NATIONAL SECURITY AGENCY	
				DAVID TAYLOR NAVAL SHIP	
				DAVID TAYLOR NAVAL SHIP	
				DAVID TAYLOR NAVAL SHIP	
				UNIVERSITY OF MARYLAND	
				DAVID TAYLOR NAVAL SHIP	
				NATIONAL BUREAU OF STANDARDS	
				NATIONAL BUREAU OF STANDARDS	
				NATIONAL BUREAU OF STANDARDS	
				DAVID TAYLOR NAVAL SHIP	
				NATIONAL INSTITUTE OF HEALTH	
				NATIONAL INSTITUTE OF HEALTH	
				DAVID TAYLOR NAVAL SHIP	
				NAVY SURFACE WEAPONS CENTER	
				NAVY ELECTRONICS SYSTEMS	
				NAVY ELECTRONICS SYSTEMS	
				NATIONAL SECURITY AGENCY	
				IBM COMMUNICATIONS	
				AIR FORCE GEOGRAPHICS	
				AIR FORCE GEOGRAPHICS	
				IBM COMMUNICATIONS	
				DOIT BERANEK AND NEWMAN INC.	
				DOIT BERANEK AND NEWMAN INC.	
				DOIT BERANEK AND NEWMAN INC.	
				DOIT BERANEK AND NEWMAN INC.	
				DOIT BERANEK AND NEWMAN INC.	

BBN-HILNET-BM	10.8.0.5	BBN Communications	WPAPS-JALGP	24.4.0.47	Wright-Patterson Air Force
BBN-HILNET-A-BM	24.1.0.40	BBN Communications	WPAPS-TAC	24.2.0.47	Aeronautical Systems
BBN-PR-GATEWAY	10.4.0.62	Bolt Beranek and Newman Inc.	OKLAHOMA		
BBN-PR-GW	10.4.0.5	Bolt Beranek and Newman Inc.	IRWIN-BILL-10	24.1.0.71	Headquarters, Department of
BBN-PR-STATION-1	10.7.0.8	Bolt Beranek and Newman Inc.	TINKER-HIL-TAC	24.2.0.71	Tinker Air Force Base
BBN-PRAT-1B	10.4.0.43	Bolt Beranek and Newman Inc.	PENNSYLVANIA		
BBN-RGR	24.3.0.77	Bolt Beranek and Newman Inc.	GDA-PDFOL	24.1.0.114	Army Materiel Development
BBN-16870-BM	10.0.0.63	Bolt Beranek and Newman Inc.	CRU-CB-A	10.1.0.14	Carnegie-Mellon University
BBN-UNIX	10.0.0.82	Bolt Beranek and Newman Inc.	CRU-CB-B	24.7.0.47	Carnegie-Mellon University
BBN-VAN-GW	10.8.0.63	Bolt Beranek and Newman Inc.	CRU-CB-D	10.3.0.14	Carnegie-Mellon University
BBN-VAS	10.1.0.82	Bolt Beranek and Newman Inc.	CRU-BATEWAY	10.2.0.14	Carnegie-Mellon University
BBN-125-GW	10.0.0.99	BBN Communications	LDRA-DB1	24.3.0.80	Letterkenny Army Depot
BBN-125-16870	10.3.0.99	BBN Communications	NAOD	24.0.0.24	Naval Air Development Center
BBN-125-16874	10.4.0.99	BBN Communications	NCAD-HIL-TAC	24.2.0.114	New Cumberland Army Depot
BBNA	10.3.0.89	Bolt Beranek and Newman Inc.	NCAD2-HIL-TAC	24.3.0.114	New Cumberland Army Depot
BBNCCP	10.3.0.5	Bolt Beranek and Newman Inc.	SHARON-10	10.1.0.94	University of Pennsylvania
BBNS	10.3.0.5	Bolt Beranek and Newman Inc.	RHODE ISLAND		
CCA-BAC	10.3.0.31	Computer Corporation of Amer.	NAVDNF-NEWPORT	24.4.0.92	Naval Data Automation
CCA-UNEX	10.0.0.31	Computer Corporation of Amer.	NMCC-ADA	24.1.0.92	Naval Underwater Systems
CCA-VMS	10.3.0.31	Computer Corporation of Amer.	NMCC-NPT	24.2.0.92	Naval Underwater Systems
CIBL-BVC-HULT	10.3.0.31	Honeywell Information Systems	SCOTLAND		
CMNET-PSN-GW	10.4.0.5	Bolt Beranek and Newman Inc.	RENET-MLH-TAC	24.1.0.13	NAVACTS
CMNET-RELAY	10.4.0.5	Bolt Beranek and Newman Inc.	TENNESSEE		
CMNET-BM	10.7.0.92	Bolt Beranek and Newman Inc.	CONL-MBR	24.3.0.41	Dak Ridge National Laboratory
DDM2	24.2.0.72	Bolt Beranek and Newman Inc.	TEXAS		
DMC-HUBBORD	10.2.0.79	Digital Equipment Corporation	A-LINE-COL-02	10.4.0.46	Rockwell International
DMC-HARLBORD	10.1.0.77	Digital Equipment Corporation	APFPC-1	24.0.0.101	Headquarters, Air Force
DMC-TOPB20	10.0.0.79	Digital Equipment Corporation	APFPC-2	24.1.0.30	Headquarters, Air Force
HARVARD	10.0.0.7	Harvard University	BROOKS-APS-TAC	24.0.0.30	Air Force Systems Command
HARVARD-BM	10.0.0.9	Harvard University	COLLINS-GW	10.1.0.46	Rockwell International
LL	10.0.0.10	MIT	COLLINS-PR	10.0.0.46	Rockwell International
LL-EH	10.4.0.10	MIT	COLLINS-TAC	10.2.0.46	Rockwell International
LL-BM	10.8.0.10	MIT	IBNIN-PYBLISS	24.4.0.74	U.S. Army
LL-PRAT-1A	10.3.0.10	MIT	UT-NPT	10.0.0.43	University of Texas at Austin
LL-BBT	10.4.0.10	MIT	UT-BALL	10.2.0.62	University of Texas at Austin
LL-VLD1	10.1.0.10	MIT	UTEXAS-20	10.1.0.62	University of Texas
LL-BM	10.2.0.10	MIT	THE NETHERLANDS		
HINNET-TC2-EH	24.0.0.11	Projects Information Network	HINNET-RDR-TAC	24.1.0.6	RTMC TCEC
MIT-A1	10.2.0.4	MIT	UTAH		
MIT-G	10.0.0.77	MIT	DBP-1	24.1.0.120	Dugway Proving Ground
MIT-NC	10.3.0.44	MIT	DUBWAY-HIL-TAC	24.0.0.120	Dugway Proving Ground
MIT-PL	10.3.0.4	MIT	UTAH-20	10.0.0.4	University of Utah
MIT-MULTICS	10.0.0.4	MIT	UTAH-DB	10.0.0.4	University of Utah
MIT-TAC	10.2.0.77	MIT	UTAH-BATEWAY	10.0.0.4	University of Utah
MIT-T87M	10.2.0.44	MIT	UTAH-TAC	10.2.0.4	University of Utah
MIT-1	10.0.0.44	MIT	VIGINIA		
NITRE-BEDFORD	24.0.0.85	NITRE Corporation	ARJ-HQ1	24.1.0.50	Army Research Institute
NSP1	24.0.0.85	Bolt Beranek and Newman Inc.	ARMA-HILNET-BM	10.2.0.28	Defense Advanced Research
TEST-HQBT5-125	10.5.0.99	BBN Communications	ARPA-MD11	24.3.0.106	Defense Advanced Research
VAX-125	10.2.0.99	BBN Communications	ARPA-MIL-TAC	24.1.0.106	Defense Advanced Research
HIMBERTA		Honeywell, Inc.	ARPA2-MIL-TAC	24.2.0.106	Defense Advanced Research
HI-MULTICS	10.1.0.94	Honeywell, Inc.	ARPA-TAC	10.0.0.28	Defense Advanced Research
KIRKOURI		Automated Logistics	ASPAR-CBC	24.2.0.9	Computer Sciences Corporation
ALHBA-1	24.1.0.61	Army Aviation Systems Command	CRU-CA	24.3.0.104	Computer Systems Command
HTL-HDR1	24.0.0.43	Army Aviation Systems Command	CSS-GATEWAY	10.2.0.25	Teledyne Bechtel
HTL-HDR2	24.0.0.312	Army Information Systems	CIS-RIND-GW	10.0.0.25	Teledyne Bechtel
HTL-TAC	24.2.0.43	Army Information Systems	DARCOR-NG	24.0.0.50	Army Materiel Development
HEBRABKA		Strategic Air Command/ADXC	DARCOR-TAC	24.2.0.50	Center for Oceanic Studies
SAC-ARPA-TAC	10.1.0.60	Strategic Air Command/ADXC	DARPA-GW	10.3.0.25	Defense Communications
SAC-BATEWAY	10.3.0.60	Strategic Air Command/ADXC	DCDC-ARPA-TAC	10.2.0.20	Defense Communications
SAC-BM-2	10.8.0.60	Headquarters, SAC	DCDC-GATEWAY	10.1.0.20	Defense Communications
SAC-HILNET-BM	10.2.0.60	Headquarters, SAC	DCDC-LINK	24.4.0.104	Defense Communications
SAC-STATION	10.0.0.60	Headquarters, SAC	DCDC-LUG2	24.1.0.104	Defense Communications
SAC1-MIL-TAC	24.1.0.105	Headquarters, SAC	DCDC-MIL-TAC	24.2.0.104	Defense Communications
SAC2-MIL-TAC	24.7.0.105	Headquarters, SAC	DCDC-HILNET-GW	10.7.0.20	Defense Communications
NEW HAMPSHIRE		Free Federal Systems	DCDC-PRAT	10.8.0.20	Defense Communications
NTEC-TACDEM-NH2	24.0.0.42	Army Armament Research	DCDC-PRAT-10	10.8.0.20	Defense Communications
NEW JERSEY		Army Armament Research	DCDC-TAC	24.2.0.20	Defense Communications
ARC-TAC	24.1.0.45	Army Communications	DGR-BATEWAY	10.0.0.111	Linkabit Corporation
CECOM-1	24.0.0.45	Army Communications	DDN-PRG-HIL-TAC	24.8.0.17	Defense Communications Agency
CECOM-2	24.0.0.40	Army Communications	OSM1	10.1.0.25	Bolt Beranek and Newman Inc.
COMADCOM-TAC	24.1.0.40	Army Communications	EDN-UNIX	10.3.0.20	Defense Communications
COMADCOM2-TAC	24.2.0.40	U.S. Army Communications	HTL-A1	24.7.0.20	U.S. Army Engineer
COMNAVJFH-B12M	24.4.0.40	Rutgers University	HUEY-GW	24.1.0.17	NITRE Corporation
RUTOERS	10.1.0.89	Rutgers University	IRWIN-CIBC	24.2.0.47	Criminal Investigation
RUTOERS-BM	10.1.0.89	Rutgers University	IRWIN-DARCOR	24.3.0.47	U.S. Army Materiel
TACTNET-BM	24.5.0.40	Army Communications	IBNIN-TRADOC	24.4.0.84	Training and Doctrine Command
NEW MEXICO		Air Force Weapons Laboratory	1FTU-BM	10.1.0.28	Defense Advanced Research
APML	24.1.0.49	Air Force Weapons Laboratory	LDUIE-BM	10.3.0.111	NITRE Corporation
APML-TAC	24.2.0.48	Air Force Weapons Laboratory	NITRE	24.0.0.17	NITRE Corporation
LANL	24.0.0.90	Los Alamos National	NITRE-BATEWAY	10.1.0.111	NITRE Corporation
SANDIA	24.0.0.87	Sandia National Laboratories	NITRE-LAN	10.2.0.111	NITRE Corporation
SINTEL30	24.0.0.74	White Sands Missile Range	NITRE-TAC	24.2.0.17	NITRE Corporation
WRRR-HET-BM	24.7.0.74	White Sands Missile Range	NORFOLK-HIL-TAC	24.4.0.108	NAS Norfolk
WRRR-TAC	24.2.0.74	White Sands Missile Range	NMCC-DL	24.0.0.84	Naval Surface Weapons Center
WRRR1	24.1.0.74	White Sands Missile Range	NMCC-D	24.1.0.84	Naval Surface Weapons Center
NEW YORK		Brookhaven National	NMCC-DAB	24.3.0.84	Naval Surface Weapons Center
BNL	24.1.0.50	Columbia University	NMCC-TAC	10.0.0.25	Teledyne Bechtel
COLUMBIA	10.3.0.89	Columbia University	DCI8ND	24.3.0.26	Computer Sciences Corporation
COLUMBIA-30	10.0.0.89	Columbia University	UDADH2	24.4.0.50	Headquarters DARCOM
COLUMBIA-BM	10.3.0.89	Columbia University	WASHINGTON		
CORNELL	10.3.0.94	Cornell University	UN-VLD1	10.3.0.91	University of Washington
CORNELL-BM	10.3.0.94	Cornell University	UN-VLD2-BM	10.3.0.91	University of Washington
BE-CRD	24.4.0.18	BE Corporate Research	WASHINGTON	10.2.0.91	University of Washington
HYU	24.0.0.50	New York University	WASHINGTON-TAC		
HYU-BM	24.0.0.50	New York University	WASHINGTON, D.C.		
RADC-ARPA-TAC	10.0.0.117	Ross Air Development Center	AFSC-NG	24.0.0.67	Air Force Systems
RADC-LDNEK	24.5.0.18	Ross Air Development Center	APSC-HQ-TAC	24.1.0.67	Air Force Systems
RADC-MULTICS	24.0.0.18	Ross Air Development Center	SCA-ERS	24.8.0.104	Defense Communications Agency
RADC-TAC	10.2.0.117	Ross Air Development Center	LINKINS-SATS	24.1.0.26	Headquarters, Department of
RADC-TOPB20	10.0.0.15	University of Rochester	NRS2CASH-001	24.5.0.8	Navy Regional Data
RUCKETER	10.0.0.15	University of Rochester	NBS-PL	24.2.0.19	National Bureau of Standards
UR-CB-BM	10.0.0.15	University of Rochester	NBS-UNEX	24.0.0.19	National Bureau of Standards
NORTH CAROLINA		Chief, ADDS Experimental	NBS-VNS	24.0.0.8	Naval Research Laboratory
BRABD-ARPA-TAC	10.2.0.38	Chief, ADDS Experimental	NRL	24.0.0.8	Naval Research Laboratory
BRABD-PR-BM1	10.0.0.38	U.S. Army Airborne Board	NRL-AIC	24.1.0.8	Naval Research Laboratory
BRABD-PR-BM2	10.3.0.38	Chief, ADDS Experimental	NRL-ARCTAN	24.4.0.8	Naval Research Laboratory
BRABD-STA1	10.1.0.38	Headquarters, Air Force	NRL-DB	24.7.0.8	Naval Research Laboratory
OHIO		Wright-Patterson Air Force	NRL-CRN-GW	24.3.0.8	Naval Research Laboratory
LODNET2	24.8.0.47	Alr Force Wright	NRL-TOPGLO	24.0.0.8	Naval Research Laboratory
WPAPS-AP1TA	24.5.0.47	Wright-Patterson Air Force	PENTAGON-TAC	24.0.0.24	Air Force Data Services
WPAPS-APMAL	24.1.0.47	Wright-Patterson Air Force	WINDBOIN		
WPAPS-IPOL	24.3.0.47	Wright-Patterson Air Force	NISC-NATHWAY	10.0.0.94	University of Wisconsin

see page 1-31 for details on how to use this data